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LEADERSHIP IN THE ORGANIZATIONAL CONTEXT:  
A CONCEPTUAL APPROACH AND ITS APPLICATIONS

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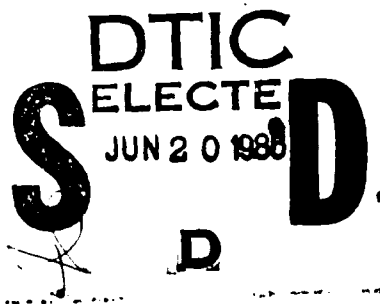
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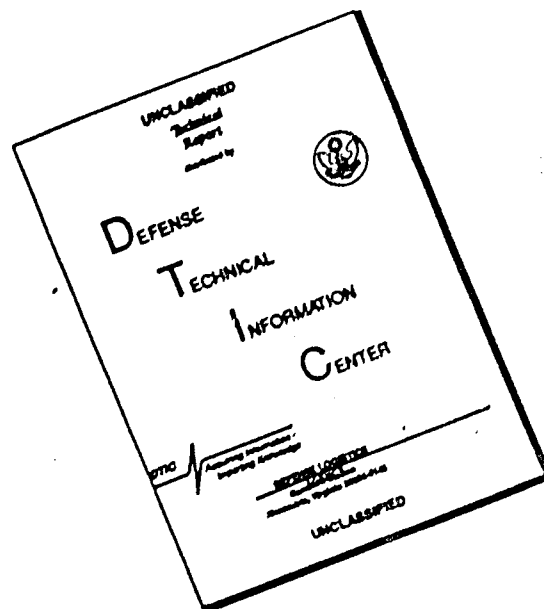
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This paper reviews the literature on leadership, noting the lack of a well-founded theoretical conception of leadership that would provide a general cross-sectional approach to leadership identification and development. It is suggested that a systems approach might be used to gain some understanding of leadership as it occurs in an organizational context and that leadership focuses on the attainment of certain goals that can only be reached by using problem-solving capabilities. Leader characteristics and cognitive processes		

## 20. ABSTRACT (Cont'd.)

that are most facilitative of goal attainment are discussed as well as implications for leadership identification and development.

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## INTRODUCTION

### Previous Approaches to Leadership Research

Because the life of modern man is influenced in countless ways by the operation of a number of organizations, their effectiveness is of vital concern to society as a whole. While the overall effectiveness of any organization is contingent on a wide variety of factors, the ongoing activity of its members must be integrated and directed to the attainment of organizational goals. Social scientists have studied leadership, or those actions taken by individuals to integrate and direct organizational activity, in the hope of enhancing organizational effectiveness by formulating procedures to identify and develop more effective leaders. In the following discussion previous efforts will be reviewed, and an approach to leadership theory, identification, and development will be suggested.

The leadership literature reflects one of the largest and most complex research areas in the social sciences. Bass (1981) notes that eleven distinguished definitions of leadership may be found in the literature, ranging from leadership as an expression of personality characteristics to leadership as a form of role behavior. A number of diverse theoretical approaches are found as well. Among the general theoretical perspectives identified by Bass (1981) are the psychoanalytic model employed by Erikson (1961), and the person-by-situation model employed by Fiedler (1972). Because rather fundamental differences such as these are often coupled with weak prediction, inconsistent confirmatory and disconfirmatory evidence, confusion concerning the processes and content of leadership, and underlying paradigmatic differences, the leadership literature does not constitute a coherent body of knowledge. It is possible, however, to obtain some understanding of this literature and its implications for leadership identification and development by considering four major historic categories of leadership research.

Typically, the earliest attempts to explain leadership behavior held that it was a behavioral outcome of some reasonably stable composite of individual traits (Bernard, 1923; Burks, 1938; Webb, 1915).

Consequently, these initial investigations employed traditional psychometric measures or qualitative observations in an attempt to identify those traits systematically related to leadership behavior. In an insightful summary of the results obtained in these investigations, Stogdill (1948) noted that effective leaders tend to manifest higher performance on traits reflecting intellectual capacity, achievement concerns, responsibility, social participation, and social status. While these results are readily interpretable when leadership is examined within a minimum competency framework, the trait approach to leadership began to falter in the late 1940s and early 1950s.

After reviewing the magnitude of the relationships observed in trait investigations, Stogdill (1948) and Bird (1941) concluded that this approach generally yields weak and inconsistent results. This observation eventually led to disenchantment with the individual difference or "great man" approach to leadership. While this disenchantment may have been well founded, a few caveats should be noted. First, as in most psychometric field studies, these initial trait investigations were subject to substantial and varying degrees of range restriction and attenuation effects that would act to reduce the magnitude of the observed coefficients, and would lead to spurious situational variation in that magnitude (Schmidt & Hunter, 1977). Second, there is some question whether these trait measures provided an adequate description of individuality, particularly in the noncognitive domain. Finally, studies conducted by Bass and Norton (1951); Bass and Wurster (1953); and Carter, Haythorn, and Howell (1950) all indicated at least some cross-situational stability in emergent leadership. These findings suggest that certain aspects of individuality are relevant to understanding leadership as a behavioral phenomenon.

Nevertheless, these literature reviews led a number of researchers to conclude that leadership was primarily a function of a situation. Subsequent experimental investigations emphasized the relevance of situational influences to the expression of leadership behavior. The significance of certain physical variables was demonstrated in studies indicating that individuals holding central positions in communications networks are more likely to be viewed by others as leaders (Guetzkow,

1954; Leavitt, 1951; Shaw, 1963), and that effective leadership in stressful situations requires a greater degree of task structuring that focuses on immediate results (Janis & Mann, 1977; Torrance, 1957). Studies examining aspects of social situations that might be relevant to leadership indicated that variables such as an individual's position in an organizational hierarchy, group cohesiveness, and member characteristics also influence the nature of effective and feasible leadership behavior (Farrow, Valenzi, & Bass, 1980; Pelz, 1952; Schutz, 1955).

While studies such as these demonstrate that a wide variety of situational variables may affect leadership behavior, the results of these investigations should be approached with some caution. As in the trait studies, the magnitude of effects obtained in these investigations has not been great, and inconsistent findings are often observed. Even when significant relationships have been obtained, they have often been derived from artificial experimental manipulations bearing only a limited similarity to leadership in real-world situations.

Another approach to the study of leadership was closely tied to leadership in realistic situations. This research trend may be traced to Lewin and Lippitt (1933), and Bales (1949). Attempts were made to identify general styles or dimensions of leadership behavior occurring in a variety of interpersonal settings that might be relevant to leadership effectiveness. Over the past thirty years, a variety of these dimensions have been identified (Bass, 1981). Among the most frequently discussed dimensions, one finds consideration (relations orientation) and initiating structure (task orientation), along with the democratic (participative) and autocratic (directive) leadership styles (Bass, 1967; Fleishman, 1953; Henphill, 1949; Sweny, Fleuchtner, & Samores, 1975).

Karmel (1973) has noted that, despite certain subtle distinctions, most of these dimensions represent little more than variations on the basic themes of consideration and initiating structure. Fleishman (1953) has presented evidence suggesting that individuals display stable differences on these two general dimensions, and studies by Mott (1972) and Meyer (1975), among others, indicate that an individual's status on



the consideration and initiating structure dimensions can yield moderately powerful prediction of eventual leadership performance. However, a variety of studies have also shown that the impact of these dimensions on leadership effectiveness is moderated by a number of situational influences (Blood & Hulin, 1967; Fleishman, 1953).

The most recent trend in leadership research might be described as the contingency theories of leadership effectiveness. Typically, contingency theories postulate that the influence on leadership effectiveness of some form of the consideration and initiating structure dimensions varies with a set of relatively specific situational variables. The theories of Fiedler (1972), House and Mitchell (1974), Vroom (1976), and Yukl (1971) are of this type. Their differences, due in part to somewhat different practical concerns, are in their specific implementation of the consideration and initiating structure dimensions, along with their definition of the situational variables held to moderate the outcomes associated with a given style of leadership behavior. Bass (1981) has pointed out that support for various contingency theories is equivocal in the sense that weak and theoretically inconsistent results are often obtained. Of course each of these theories examines only a limited set of situational variables and leadership behaviors in a very complex field, but even so current contingency theories are not likely to provide an adequate foundation for a general theory of leadership or the identification and long term development of individual leaders.

#### Leadership Identification and Development

The research described above has two central implications: first, that leadership behavior can be identified by observation and summarized in meaningful dimensions; and second, that individual and situational characteristics interact in a highly complex fashion to determine the leadership effectiveness of a given individual. The suggestion that the nature of effective leadership cannot be separated from the situation it occurs in creates a fundamental problem with respect to leadership identification and development.

An individual employee is likely to work in a variety of situations during a career in an organization. Since the nature of effective leadership behavior is likely to vary as a function of situational

differences, it will be difficult to devise general rules for the selection and development of organizational leaders in a reasonably economical fashion. Thus, current conceptions of leadership make it difficult to approach leadership identification and development in a general, systematic fashion. The resulting state of affairs is analogous to that arising from the assumption that test validities are situation-specific, in that it tends to prohibit the construction of the general rules that would constitute a science of leadership identification and development (Schmidt & Hunter, 1977). This line of argument also suggests that many general programs currently employed in leadership identification and development may not address the demands actually placed on individuals in given leadership situations, particularly since few of these programs attempt to examine both general and specific aspects of leadership effectiveness in the organizational setting.

Although organizations do differ in a number of ways, to the extent that they represent specific manifestations of a more general phenomenon, there is likely to be some similarity in the demands placed on leaders across situations or classes of situations. If these consistencies can be identified, and linked to their implications for an individual's performance as a leader, it should be possible to formulate a general and economical approach to leadership identification and development. Of course, the value of this attempt is likely to be enhanced if these generalities can be linked to specific manifestations in a given situation. The ensuing discussion will attempt to specify these consistencies and their implications for leadership identification and development.

## A GENERALIZED APPROACH TO LEADERSHIP

### The Organizational Context

Any attempt to formulate a general approach to leadership identification and development requires a general description of the organizational setting in which leadership occurs. A number of attempts have been made to obtain some understanding of organizations as a general social phenomenon beginning with the work of Durkheim (1947) and Weber (1964). Initial attempts to describe social organizations commonly focused on the stability of social structures, and these early conceptions of society and social institutions had a substantial impact on the study and manipulation of organizational behavior. The seminal work of Taylor (1960) and Gilbreth (1972) assumed a stable pattern of role relationships and requirements, and employed this assumptional groundwork to formulate general prescriptions for organizational effectiveness. The fundamental flaw in these early conceptions of society and social institutions lay in the assumption that social institutions or processes are inherently stable in character (Perrow, 1970).

More recent studies examining the nature of organizational structure and effectiveness have not found any single structure capable of universally enhancing organizational effectiveness. They have found that the structure of effective social organizations is contingent on the nature of the production process and the organizational environment (Burns & Stalker, 1961; Woodward, 1965). Change in the content of these variables results in a series of integrated, systematic changes in an organization's structure processes (Trist & Bamforth, 1951; Thompson & McEwen, 1958). This led Perrow (1970) to conclude that social organizations are best conceived of as open, adaptive systems engaged in a series of goal-oriented transactions with their operative environment. Similar conclusions have been reached by Katz and Kahn (1977) and by Ulrich and Wieland (1980) after a review of the relevant literature.

At present there seems to be general agreement that organizations and society are best conceived of as open systems. This conception suggests that certain broad conclusions about organizations in general, and leadership in particular, might be generated through systems

theory. As originally proposed by Von Bertalanffy (1968), systems theory was intended as a general integrating model for the physical, biological, and social sciences. Systems theory displays substantial similarity to gestalt psychology (Kohler, 1938) and field theory (Lewin, 1951). It postulates that any system is composed of an organized set of elements of subsystems, and that the dynamic interaction of the system and its elements with the external environment determines the current state of the system. Causation is viewed as a complex phenomenon which cannot be understood through isolated causal variables, and which is reciprocal in the sense that changes in the system feed back upon themselves. Thus, change in any system is held to be complex, organized, and to occur in an integrated fashion over time. The behavior of the system as a whole is viewed as a purposeful, goal-oriented activity, with the actions of various subsystems embodying a discrete set of subordinate goals integrated by the superordinate goals of the system as a whole.

When social organizations are viewed from the perspective of systems theory, it becomes possible to formulate certain conclusions concerning their nature and operation that appear to provide an adequate description of the realities of organizational behavior (De Green, 1973). Katz and Kahn (1977) have noted that social organizations form as a result of individuals engaging in collective activities in order to attain certain goals that could not be attained by an individual acting alone. However, the activities of a group cannot be said to reflect organizational activity until feedback from the environment has occurred, and the division of labor and integration of subsystems is manifest in the system's operation. Bureaucracies, as defined by Jaques (1977), represent a specific form for social organization in which an individual's role is formally specified in a set of role expectations. An individual in a bureaucracy, or any other social system, may fill multiple roles, and may be a component of a number of systems or subsystems. This makes it difficult to clearly delineate a system and its subsystems, unless each system or subsystem is defined as a cohesive, repetitive pattern of transformation activities.

In order to meet their goals, organizations will extract selected human and physical resources from the environment. These raw materials will be manipulated in a transformation process derived from the division of labor, its associated role structure, and the technical process in use. The transformed product will be employed by other systems or subsystems leading to goal attainment and maintenance of the sociotechnical transformation processes. During these processes, the organization will monitor its own outputs and subsystem actions, and the environment. This feedback will be used as a basis for change in the nature of the system, and thus adaptive growth and integration of subsystems. A division of labor among individuals and subsystems will occur as one result of this monitoring and feedback. The nature and content of the division of labor is likely to vary as a function of the transformation process, coupled with its physical and social environment, and the role of any individual or subsystem is likely to be specified by certain subgoals inherent in the nature of the transformation process.

As social systems, organizations are composed of and completely dependent on a set of unique and highly autonomous subsystems, i.e., individual human beings. Individuals choose to engage in organizational activity for a variety of reasons, aside from those directly tied to task performance and the transformation process. Of these reasons, the attainment of social goals, such as belonging and affiliation, are of special importance. The existence of these personal goals, the sheer diversity of individuals, and the different position of individuals in the transformation process, produces a high degree of complexity in the organization's goals. Because limitations on the resources available are likely to preclude complete satisfaction of all participant and subsystem goals, social organizations will experience a high degree of internal and external conflict as well as imperative demands for effective adaptation.

The complexity and conflict in organizations makes it difficult to integrate subsystem functioning, maintain the effectiveness of the transformation process, define goal priorities, and direct adaptive change. In order to reduce ambiguity and conflict, organizations will

often specify the bounds of legitimate and expected activities in role requirements, ensure interchangeable roles across individuals, and formulate a hierarchical arrangement of the relevant domains of responsibility. Thus, leadership becomes a crucial determinant of organizational effectiveness. Individuals whose roles require that they control and coordinate the activities of two or more systems or subsystems, down to the level of the individual as a subsystem, are in a sense serving in a boundary role between systems or subsystems.

#### Studying Leadership in an Organizational Setting

If organizational behavior can be described and understood in a broad sense through systems theory, what are the implications for the definition and study of leadership behavior in the organizational setting?

Katz and Kahn (1977) have noted that in any organizational system, leadership is one aspect of a boundary role function. In this sense, leadership is manifest in those actions taken by an individual in an *organizational boundary role that affect the transformation process* occurring within at least one other subsystem of the organization. In a bureaucratic organization, leadership may involve interaction with 1) higher order subsystems, 2) subsystems at a similar level, 3) lower order subsystems, and 4) other systems or the broader environment. Because this conception of leadership implies changing the nature of the transformation process, leadership actions are not likely to be trivial activities. However, no statement is made here concerning the effectiveness of these leadership activities, since there may be many more ineffective than effective leaders, if the course of human history is an adequate index (Meyer, 1980).

Effective leadership may be defined as those overt or covert actions taken by an individual as the occupant of a boundary role interacting with certain other systems or subsystems, that influence the transformation process and the goal attainment of these systems or subsystems in such a way as to enhance organizational effectiveness and adaptation. Hence effective leadership is held to enhance the effectiveness or adaptation of the system as a whole. Individual actions may enhance the attainment of subsystem goals, but may do so at the expense

of the system as a whole; from an organizational perspective such actions cannot be considered effective leadership. Effective leadership may require sacrificing attainment of subsystem goals in order to enhance the adaptation of the system as a whole (e.g., the platoon leader who sacrifices a unit in combat in order to save a regiment). Of course, situational influences are by no means irrelevant to an understanding of the nature of effective leadership, since a wide variety of situational influences may affect the content and form of the individual behavior most likely to enhance organizational adaptation.

The above definition of effective leadership displays some similarity to previous definitions, yet it differs from them in a number of ways. Clearly, this definition of effective leadership is not intended as a general conception of the leadership phenomenon, but is intended to reflect leadership as it occurs in the organizational setting. This definition focuses on the process or nature of leadership rather than on the specific content of leadership behavior. Leadership is viewed as the outcome of an action rather than as a specific form of behavior, in the sense that effective leadership is reflected in the consequences of certain overt or covert actions. This distinction between overt and covert actions is intended to convey that in some situations effective leadership may be shown in a decision not to attempt to influence a certain subsystem. However, effective leadership is limited to the direct outcomes of an individual's actions as the occupant of a boundary role. This conception of effective leadership also views the phenomenon as a property of the individual. This implies that leadership is a form of discretionary behavior in which there is a significant element of choice about whether and what kind of action will be taken. Actions that are completely specified by normative role requirements are a property of the organization rather than of the individual.

A variety of behaviors or actions may result in effective leadership. Yet, the domain of relevant behavior is fairly well-specified in terms of its outcomes and the associated processes, since leadership is entailed in those discretionary activities that influence others and enhance the effectiveness of the transformation process and organizational adaptation. This conceptualization of leadership is perhaps most

similar to Hemphill's (1949) definition, but it appears to be somewhat broader and capable of incorporating many existing definitions, when they are thought of as operating in a given organizational setting. While this model suggests that the nature of effective leadership is contingent on both the individual and the situation, it does permit the derivation of certain general conclusions pertaining to leadership identification and development that are linked to the specific demands on an individual as the occupant of a boundary role in an organizational setting.

#### Leadership Behavior

Some General Attributes. In any organizational setting where behavior is not completely specified by role requirements, a variety of alternative actions are likely to be available to an individual that may affect the transformation process occurring in a variety of subsystems in a variety of ways. Whenever leadership is exhibited, the individual is making decisions about the kind of actions to take to influence the transformation processes occurring in other systems or subsystems. In instances of effective leadership, the chosen actions will enhance goal attainment and the eventual effectiveness and adaptation of the organization as a whole. Across all situations, effective leadership will entail a form of problem-solving activity requiring decisions be made about a series of discretionary actions in relation to the valued outcomes of goal attainment and organizational effectiveness (Scandura, 1977). This consistency in the process of leadership indicates that it might be possible to formulate a general system for leadership identification and development on the basis of generic problem-solving attempts (Sternberg, 1982).

These problem-solving activities should not be viewed as traditional knowledges, skills and abilities. Rather, they are more similar to the meta-process held to underlie problem solving, reasoning and general intelligence (Sternberg, 1981; Resnick & Glaser, 1977). The sequence of problem-solving activities presented here was derived from a review and evaluation of the relevant literature. However, the recent emergence of



this literature and the synthetic approach taken in the present effort, suggests that this list should not be viewed as all inclusive. Training bearing on these problem-solving activities has been shown to lead to enhanced performance on problem-solving tasks (Campione & Brown, 1977, 1979; Polson & Jeffries, 1982). While these generic activities are likely to be involved in all problem-solving attempts, the pattern of usage may vary across roles and positions. For instance, definition of the problem may be especially important to leadership effectiveness in upper-level boundary roles where complexity is great and role incumbents are responsible for adapting the organization to the broader environment, while the generation of alternative solutions to problems may be more important in staff positions.

A schematic overview of the generic problem-solving processes identified in the review, along with their hypothetical sequence in an incident of problem solving, may be found in Figure 1. In all, twelve such processes were identified in the literature, seven of which represent control processes, and five of which represent production processes. This sequence of problem-solving processes lays the foundation for identification of generic skills.

Rietman (1964) notes that "a problem" is a discrepancy between the current state of affairs and some desired state which, in the context of leadership in bureaucratic organizations would be specified by the goals inherent in the individual's role. Hence, before an individual can engage in solving a problem, it must first be established that a goal is not being met. This calls for the first problem-solving process, which entails monitoring the stimulus situation to identify certain cues signaling a goal state (Kahneman, 1972). This process will require both attention to and a knowledge of the cues relevant to the current status of the goal, as well as the ability to abstract this information from a complex environment. Experience is likely to enhance the operation of this process (Hunt & Lansman, 1982; Lane, 1982; Simon & Simon, 1976).

The next process involves an evaluation of the importance of the discrepancy. Essentially, this is a kind of control mechanism allowing the individual to reject trivial or unimportant problems, and thus

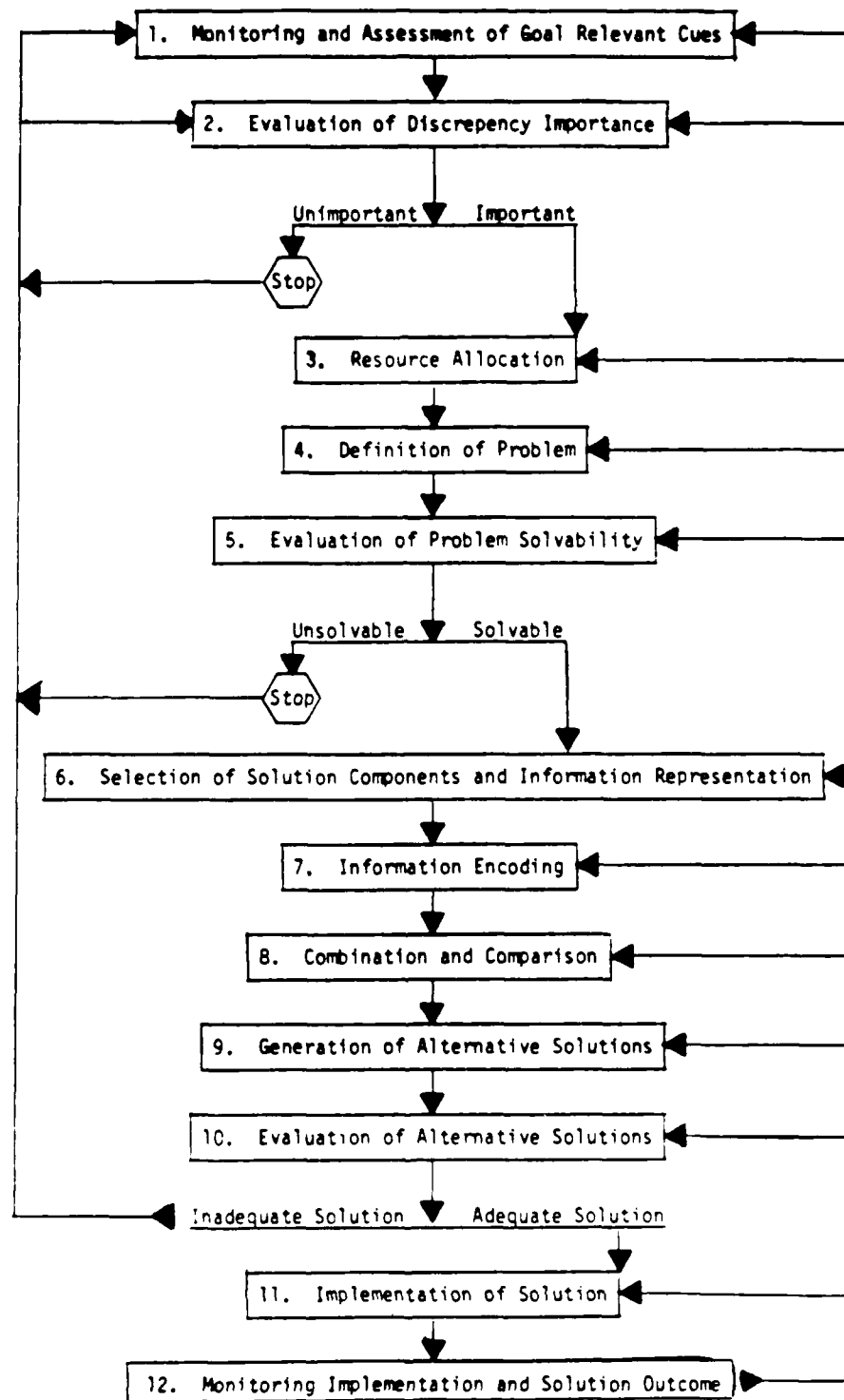


Figure 1. Generic skills.

increasing efficiency in individual problem-solving activity (Hogarth, 1980). Cues signaling a goal state will be compared to a cognitive template of the ideal state and its associated cues. The importance of these signaling cues will be assessed on the basis of the strength of the signal, their reliability as an indicator of the goal state, their frequency of occurrence, and their overall resemblance to the template (Sternberg, 1982). The importance of these signaling cues, and the degree of discrepancy from the template cues, will enter into an estimate of the magnitude of the discrepancy. This estimate of the degree of discrepancy is likely to be combined with an evaluation of the importance of attaining the goal state to determine whether or not the problem should be solved. Clearly, an inappropriate prioritization of goals will substantially influence the effectiveness of this process, and once again direct training and past experience are likely to play an important role in this evaluation process (Hogarth, 1980).

After it has been determined that there is a problem worth solving, some decision must be made taking into account the other demands placed on the individual, general motivation, interest in the problem, and the overall importance of the problem about the resources (such as time and effort) that should be devoted to problem solution (Hogarth, 1980; McCall, Kaplan, & Gerlach, 1980; Sternberg, 1977). This evaluation process can have a dramatic effect on the nature of later problem-solving procedures and the quality of the resulting solution. For instance, Cyert and March (1963) have noted that decision makers operating under multiple demands and time pressure will often limit their time investment in solution generation by satisficing, or selecting the first solution that might work, rather than generating and evaluating a number of alternative solutions.

Individuals will next define the specific nature of the problem at hand; that is, just what it is that needs to be solved. This is a critical skill that involves identifying the variables and interrelationships that are relevant to the problem or discrepancy even in the presence of incomplete or distorting information (Markman, 1977; Resnick & Glaser, 1977). While the adequacy of problem definition will depend on a variety of factors including experience, the content and clarity of

the cues bearing on the nature of the discrepancy and the individual's capability for establishing relationships in a poorly-defined field, etc., it is also likely to be markedly influenced by resource allocation since variable specification will tend to be poor when little time and effort are available.

Problem solvability will be evaluated on the basis of the relevant variables and the nature and magnitude of the discrepancy. This evaluation will be heavily dependent on past experience with problems involving similar variables and discrepancies, and will consider the available resources and the overall importance of the problem. The results of the evaluation will be employed in a judgment as to whether or not a problem solution should be attempted (Hogarth, 1980; McCall, Kaplan, & Gerlach, 1980). If resources are limited, similar problems have proved difficult to solve, and/or the problem is unimportant, the individual can be expected to return to monitoring; otherwise, an attempt to solve the problem will be made.

The first step in problem solution entails selection of (1) the skills, knowledges and abilities required, (2) the manner in which the relevant information should be represented, and (3) the sequencing of operations. While this process might be separated into a set of discrete subprocesses, Sternberg (1982) has noted that the relevant processes are so highly interdependent in practice that they will be difficult, if not impossible, to separate. The particular selections made will depend on the nature of problem definition, the individual's relative effectiveness in employing the skills, knowledges, and abilities and knowledge of and facility in working with various strategies (Greeno, 1977; Paris, 1973; Chi, Glaser & Rees, 1982).

The selection made in this process will then guide the individual through the next process, that is, encoding information bearing on the nature of the problem and the relevant variables through direct acquisition and retention as well as transfer from long-term memory. Siegler (1978) has demonstrated the importance of this encoding process, by showing that more effective problem solvers spend more time encoding. This operation will be substantially influenced by the outcomes of the foregoing processes. For example, it is likely that the time spent in

encoding will be limited by resource allocation. Moreover, variety of situational factors may also influence the effectiveness of encoding, including individual knowledge of the relevant information sources, the physical and cognitive availability of this information, its causal implications, relevance to the overall situation, recency, redundancy, specificity and perceived helpfulness (Einhorn & Hogarth, 1981; Tversky, 1977).

Next, the combination and comparison process will be carried out. Although knowledge about the characteristics and content of this process is limited, it appears to be a critical aspect of complex problem-solving (Klah & Wallace, 1977; Sternberg, 1982). Generally, the combination and comparison process can be conceived of as an associative categorization process along the lines suggested by Bruner (1966). For our purposes, it can be expected that this process will result in a set of categories containing the relevant information in weighted form providing a representation of the current situation, the projected situation, and methods for moving between the two.

These categories will then provide the background for the generation of alternative solutions. This process is similar to Guilford's (1977) divergent thinking construct, although it is somewhat more similar to creativity in the sense defined by Owens (1969). The categories will be manipulated and interrelated to produce alternative procedures for moving from different representations of the current state to alternative outcome states. While there is little support for the importance of this process in the problem-solving literature, evidence has been obtained in other areas (Barron & Harrington, 1981), and the adequacy of the selected solution is clearly dependent on the generation of viable alternatives. Effective use of this process is also dependent on the previous processes. For example, the generation of alternatives is often circumscribed in practice when resources are limited. Background experiences and personal characteristics also appear to influence the process (Barron & Harrington, 1981; Hogarth, 1980).

The process of choosing among the generated alternatives has been labeled "evaluation of alternative solutions." It can also be expected

that the nature of these alternatives will be influenced by the foregoing processes as well as a variety of background experiences and personal characteristics (Barron & Harrington, 1981; Hogarth, 1980). Here, each alternative will be assigned a subjective probability of resulting in the desired outcome. Generally, the individual can be expected to choose the alternative that will produce an outcome of the highest value and probability of occurrence (Kahneman & Tversky, 1973). This expectation may be modified by considerations such as a conservative bias, a desire to resolve conflict, preference ambiguity, avoidance of responsibility, self-confidence and power (Einhorn & Hogarth, 1981; Hammond & Summers, 1980). The individual may decide that no solution should be chosen due to the lack of a clear differentiation of utilities, lack of any particularly valued outcome, high uncertainty, or refusal to accept responsibility. In this case, the individual will return to monitoring or to evaluation of discrepancy importance, and cycle through the processes again. If an acceptable solution is found, the individual will move on to implement that solution.

Because much of the relevant research is limited to laboratory problem-solving, where implementing a solution is simply a matter of choosing a response or vocalizing a preference, there is not a great deal of literature focusing on the implementation process. It is likely that implementation of a solution will be complex process, involving mobilization of resources and skills, knowledges, and abilities in an integrated fashion. This skill represents the overt behavioral component of leadership, and it is likely to be influenced by a variety of factors, especially socio-psychological variables such as persuasiveness, power and credibility (Bass, 1981).

Following implementation of the selected solution, the eventual outcome, as well as the specifics of solution implementation, are likely to be monitored. This information will be fed back into the system for use in later problem-solving attempts (Sternberg, 1982). This process appears to be of substantial importance in the development of problem-

solving skills. Training in monitoring has been shown to enhance intellectual performance (Belmont & Butterfield, 1971), which is not surprising since monitoring solution implementation and outcomes provides a basis for experiential learning. Of course experience and implementation do not necessarily lead to useful learning experiences outside the laboratory (Bremmer, 1978). The limited value of direct experience may be attributed to uncontrollable features of a situation, the complex nature of a situation and of problem-solving activities, ambiguity in feedback, inability to test alternative hypotheses and self-fulfilling prophecies (Castellan, 1977; Einhorn & Hogarth, 1978). While monitoring is likely to be important in the development of problem-solving skills, it cannot be expected that it will be uniquely effective.

Some specific attributes. The discussion of generic processes suggested that each will be involved in all problem-solving activities to varying degrees, and so constitute the groundwork for description of effective leadership in an organizational setting. There is an implicit assumption that differences between individuals in the extent and effectiveness of employment of the generic process in problem-solving activities could account for some variability in leadership effectiveness across individuals and situations, and thus serve as a general basis for leadership identification and development. This does not mean that problem-solving activities per se are identical across individuals and situations. Generic processes cannot operate in the absence of specific content; the nature of this content could differ across individuals and situations.

These processes obviously require a unique set of skills and characteristics if they are to yield effective problem solutions in a particular situation. In some cases only a threshold amount of a certain content variable needs to be present for effective process operation, while in other cases considerable facility may be required. The effective operation of each process and the eventual problem solution, is likely to require a number of discrete skills, knowledges, abilities and personal characteristics employed to provide an organized framework

for process operation. The number of potential content variables influencing problem solution in boundary role activities is extensive, ranging from variables such as attention span and mechanical comprehension to other variables such as interpersonal sensitivity and knowledge of organizational structure. The nature of the content variables employed by a given individual is likely to vary as a joint function of the skills, knowledges, abilities, personal characteristics and experiences available to that individual.

It is likely that an individual may not employ all relevant content variables in a particular problem-solving attempt. Only those variables that are available to the individual and can be effectively employed in the problem situation at hand are likely to be used. This implies that poor performance on a problem-solving task, and thus ineffective leadership, might be due to poor selection of relevant content variables as well as inability to employ the content variables or problem-solving processes effectively. Even in a hypothetically identical situation, different individuals may employ functionally different patterns of skills, knowledges, abilities, and personal characteristics in equally effective problem-solving attempts. When these pattern differences display some cross-situational stability, they are likely to produce different types of leadership style (Polson & Jeffries, 1982). This suggests the possibility of pattern or qualitative differences among individuals in their use of content variables, as well as simply differences in the effectiveness with which the variables are employed. Unfortunately, these qualitative differences are difficult to examine and control for, and any attempt to use them to describe an individual leader in general must be considered highly approximate aggregate data.

The characteristics of the generic problem-solving processes suggest that the particular combinations of skills, knowledges, abilities and personal characteristics employed by an individual will vary with the nature of the problem situation at hand. For example, in the case of leadership tasks involving substantial social contact it could be expected that social skills would be of substantial import, while in the case of leadership tasks of a distinctly conceptual nature, such as those involved in a chief executive's definition of organizational



goals, it could be expected that interpersonal skills would be less important than cognitive skills and abilities. When individual variance in skills, knowledges, abilities, and personal characteristics is coupled with situational variance, such as the salience of signaling cues, which affect the operation of the generic processes, there can be little doubt that the situation will have a substantial impact on the nature of effective leadership in a direct behavioral sense.

There are many ways in which effective leadership behavior and problem-solving activities may differ in terms of the skills, knowledges, abilities and personal characteristics required for effective problem solution in boundary role discretionary activities. Yet this does not necessarily indicate that it would be impossible to link problem solving and effective leadership to a general set of skills, knowledges, abilities and personal characteristics required for these activities. To the extent that a given class of similar boundary roles consistently presents similar problems to role occupants, it is likely that this similarity will induce at least limited consistency in the content of effective leadership and problem-solving activities. There may be global situational constraints across role categories, such as multiple demands for time investment, which would suggest some general elements of effective leadership and problem solving, such as high energy or motivational levels. Thus, in this limited sense, it should be possible to link effective leadership to a general content of skills, knowledges, abilities, and personal characteristics for a given role or class of roles, although it can be expected that the feasibility of identifying content variables of this sort of any particular significance will diminish as boundary roles become more diverse.

Empirical Support. A possible framework has been suggested concerning the nature of individual leadership and the conceptual underpinnings of effective leadership. Before turning to its practical implications, it would seem appropriate to review the available literature supporting the validity of this framework.

It has long been recognized that reasoning ability and the individual's capacity to solve novel problems are closely related to intelligence (Tyler, 1964). In fact, the generic problem-solving processes

might appropriately be viewed as subprocesses involved in general intelligence (Sternberg, 1982). Earlier, it was noted that intellectual capacity typically displays a moderately positive relationship to leadership performance; however, the magnitude of this relationship might be underestimated due to the operation of range restriction effects in the relevant psychometric field studies. In a meta-analysis correcting for range restriction effects, Cornwell (1983) found that the relationship between intelligence and leadership performance lies in the mid-50s. Similarly, in an unrestricted analysis of movement into sociological leadership positions, Ball (1938) correlated occupational status with the average intelligence of occupational members and obtained an initial correlation of .50 which increased to .75 over a ten-year interval. Bray, Campbell, and Grant (1974) have shown that general intelligence is one of the best predictors of performance in managerial leadership positions, while Terman (1959) has shown that the highly intelligent are far more likely than most to obtain and perform successfully in a wide variety of leadership positions in terms of variables ranging from military honors to academic leadership. Finally, Horner (1983) has found that intelligence was an excellent predictor of tank crew leadership in combat situations.

These studies suggest that the relationship between intelligence and its component processes is far stronger than might be expected after a cursory review of the literature that fails to consider the impact of range restriction effects. Thus, it would seem that there is some tangible support for use of the generic problem-solving processes in attempts to understand leadership effectiveness. However, it cannot be assumed that these processes will operate independently of the specific situation at hand. One would expect to find interactions between intelligence or its component processes and the specific content variables reflecting skills, knowledges, abilities, and personal characteristics required for problem solving in the leadership situation. In recent studies employing the least preferred co-worker approach, Fiedler (1983) has found replicable interaction effects of this sort, while Hollander and Julian (1970) have found that the impact of intelligence on leadership effectiveness is moderated by the average intelligence of followers.

The framework described above would lead one to expect some change in specific content variables relevant to leadership performance as a problem situation changes. Strong support for this position has been obtained in a study by Carter, Haythorn and Howell (1950) which manipulated the nature of a problem situation (e.g., a mechanical task, a clerical task, and an intellectual task) and found that similar individuals tend to emerge as group leaders on tasks with similar demands, while different individuals tend to emerge as leaders on tasks with dissimilar problem-solving demands. The tendency of individuals holding central positions in communication networks to emerge as leaders has also been attributed to their greater ability to solve problems facing the group (Guetzkow, 1954; Shaw, 1963). It might be expected that individuals with practice in solving challenging leadership problems would be more likely to emerge as effective leaders at a later date; Bray, Campbell, and Grant (1974) have obtained evidence supporting this proposition in a sample of managerial personnel.

At least three additional pieces of evidence bearing on the validity of the foregoing propositions may be found in the literature. Earlier it was pointed out that changes in the nature of problem-solving situations should lead to some change in the requirements for effective leadership. Kanter (1977) and Pelz (1952) have found that the nature of problem-solving demands changes as individuals move up the organizational hierarchy, and that it is associated with changes in the skills, knowledges, abilities, and personal characteristics required for effective leadership in these different categories of boundary roles. One might expect that the relationship of these changes to leadership effectiveness would be associated with increased demands on intelligence and its component problem-solving processes, which generalize across specific boundary roles at a given level. Jaques (1977) has provided some evidence indicating that this expectation does, in fact, hold true. Finally, to the extent that a variety of boundary roles are associated with similar problem-solving demands, certain consistencies should emerge in the nature of the relevant content variables and problem-solving behavior. Katz and Kahn (1977) have pointed out that in any organizational setting, boundary role occupants will nearly always be presented with at least some problems of a distinctly social nature

related to individual needs for belonging and affiliation, and some problems stemming from the need to complete objective tasks. Therefore, it is not especially surprising that consideration (relation orientation) and initiating structure (task orientation) consistently emerge as general dimensions of leadership behavior capable of predicting differential effectiveness. However, it is also true that the framework sketched out above suggests that the relevance of these dimensions to leadership effectiveness would be influenced by more specific situational factors and that their predictive power would thus be limited. The literature mentioned earlier also provides support for this proposition.

The literature seems to contain a variety of empirical findings providing substantial support for the theoretical framework. It appears that this approach to leadership and leadership effectiveness provides a mechanism for integrating a variety of highly divergent observations, and that it might provide a more adequate theory of leadership as a general behavioral phenomenon than has hitherto been available. Consequently, it now seems appropriate to examine how this approach might be implemented in the organizational setting, and its potential applications in the area of leadership identification and development.

## APPLICATIONS

### Implementation

In formal bureaucratic organizations, where roles are to some extent specified independently of individual actions, and subsystem or role interchanges occur in a circumscribed fashion defined by the organization, it should be possible to identify boundary roles and occupants on the basis of formal organizational structure. While this approach will not capture informal roles formulated by an individual, it will permit specification of those roles held to be of legitimate and stable import to the organization.

Once the boundary roles in the formal organizational structure have been identified, it will be necessary to identify the problem-solving activities engaged in by role occupants. These problem-solving activities would be reflected in discretionary behavior carried out with respect to certain goals. The discretionary activities performed by role incumbents affecting the transformation processes characterizing other subsystems could be identified; this information would be employed to define the nature of effective leadership and problem-solving behavior in each boundary role. Standard job analysis procedures may be used to specify the nature of these activities. The richness of the resulting descriptive information might be enhanced by using inventory ratings to determine the frequency and importance of each activity as well as its relevance to the various goals associated with the boundary role at hand.

Of course, a wide variety of boundary roles and discretionary activities are likely to be identified in any given organization. Hence, it will be necessary to summarize this information to obtain a more general and useful description of leadership problem-solving requirements. This summarization is best accomplished through a two-step sequence. Initially, those boundary roles that should be combined in similar categories would be identified. This may be accomplished either through an empirical clustering using the rating data describing each boundary role, or through a rational categorization of boundary roles

based on job descriptions and organizational structure. Some combination of these two approaches might be employed in the sense that boundary roles might be empirically clustered within a given level of the organizational hierarchy. Once the relevant categories have been defined, it will then be necessary to summarize the leadership discretionary activities occurring within the boundary roles incorporated in each category. This clustering of discretionary activities could be accomplished in a variety of ways, and it is likely that the particular procedures employed in the definition of these summary dimensions will vary with their anticipated applications (Fleishman & Quaintance, 1984). In most cases, manifest similarity in the content of the discretionary activities will serve as the basis for development of summary dimensions.

Once summary dimensions have been formulated, it will be necessary to determine the relevance of the various generic processes and content variables to effective performance on these summary dimensions. The most economical and direct approach would entail defining a domain of relevant skills, knowledges, abilities, and personal characteristics on the basis of a literature review and direct observation. Subsequently, these content variables and the generic processes would be rated for frequency of use and criticality in accomplishing the discretionary activities incorporated under each summary dimension within a given boundary role category. While these ratings might be obtained from either subject matter experts or job analysts, it seems likely that the complexity of the generic skills and some of the relevant content variables will require the use of job analysts in some populations, while subject matter experts might be used in other populations.

Two additional points should be noted. First, when long range career development efforts are being considered, an organization might find it valuable to formulate summary dimensions extending across various job or boundary role categories and to obtain generic process and content variable ratings for each of these dimensions. This can be accomplished simply by aggregating data across the relevant boundary role categories and then generating summary dimensions and ratings in accordance with the procedures sketched out above. Second, studies

conducted in the military and in industry have shown that this descriptive approach can be highly useful in generating an understanding of leadership effectiveness in the organizational setting and can provide the requisite groundwork for a systematic approach to leadership identification and development (Clement & Ayres, 1977; Deluca & Powers, 1971; Hemphill, 1959; Tornow & Pinto, 1976).

#### Leadership Identification

One potential application would lie in the identification of individuals who are most likely to perform effectively in leadership positions. An attempt could be made to identify individuals in the applicant pool who have successfully solved a variety of problems in a number of different settings, either before or after organizational entry. This approach is based on the assumption that individuals who have displayed effective use of problem-solving processes in the past are more likely to do so in the future. Alternatively, applicants might be selected on the basis of general intellectual ability, since such measures are closely related to effective use of the generic processes. Finally, an attempt might be made to identify problem-solving activities that generalize across boundary roles and the skills, knowledges, abilities, and personal characteristics related to effective engagement in these activities. Subsequently, measures of these skills, knowledges, abilities, and personal characteristics could be employed in selecting leaders.

It is difficult to recommend any one of these three approaches for exclusive use in leadership identification. While the first two strategies are likely to be effective and capable of ready implementation in most organizations, their feasibility and effectiveness may be limited by extreme range restrictions in the applicant pool, the limited availability of highly intelligent and highly successful talent, and equal employment opportunity issues. The third approach offers the advantage of manifest content validity, but no direct assurance that the individual will be a generally effective problem solver or will have available the skills, knowledges, abilities, and personal characteristics required for effective leadership on specific job assignments. Consequently, the

application of multiple strategies is to be encouraged in most situations, although the most appropriate combination and implementation of these alternatives will depend on the nature of the organization, its applicant pool, and the legal constraints under which it operates.

While the central concern is identification of individuals likely to be effective leaders in a single boundary role or category, the methods are somewhat more straightforward. In this case, the content variables related to successful performance on the summary dimensions would be identified and used as a basis for selecting potential leaders through experience, assessment centers or performance on standard psychometric measures of these variables. In certain cases, it might be possible to identify individuals who have been effective leaders in other boundary roles with similar dimensions of discretionary behavior and relevant skills, knowledges, abilities, and personal characteristics. Regardless of the particular methods employed, it seems likely that when job-specific strategies are used in conjunction with the general strategies described above, an organization will be able to formulate a viable system for leadership identification.

#### Leadership Development

Leadership identification strategies are often used to single out individuals for special development. It is not always necessary to limit developmental experiences to a select few, and in the following paragraphs, the implications of this approach for the development of more effective leaders will be examined. The focus of this discussion will be on leadership development per se, rather than on training. It is unlikely that leadership effectiveness can be much improved by a single training intervention carried out in a short period of time. The literature suggests that development of effective problem-solving behavior and leadership will require a long-term effort due to the complex and enduring nature of many of the relevant individual characteristics. Additionally, because of their diversity it is unlikely that any single training procedure will result in substantial improvement of all the relevant processes, skills, knowledges, abilities, and personal characteristics. Instead, a variety of training procedures should be employed, ranging from on-the-job training to lectures and classroom



exercises. Finally, development of these processes, skills, knowledges, abilities, and personal characteristics need not always be tied to a specific boundary role. Increasing an individual's awareness of the biases that can arise in information encoding might readily enhance leadership effectiveness, despite the fact that this is not directly related to particular problems emerging in certain boundary roles.

Once the summary dimensions of discretionary activities occurring in a boundary role or role category have been established, and linked to the generic processes and content variables required for solving problems through frequency and criticality ratings, this information could serve as a foundation for a systematic effort to develop more effective leaders. Such an approach to leadership development might be based on: (1) a set of specially designed problem-solving exercises, (2) formal classroom instruction, and (3) an organized sequence of on-the-job training requirements.

One technique that might be used to develop problem-solving skills would employ realistic problem-solving exercises or problem sets (Whitmore, 1973; Whitmore & Fry, 1974). These problem sets could be generated simply by having a panel of incumbents or subject matter experts in the boundary role at hand review the content of each relevant summary dimension and formulate a realistic scenario of problem-solving activities based on these dimensions. Ratings of the frequency and criticality of the generic processes, and the traditional skills, knowledges, abilities, and personal characteristics associated with effective solution of these problem sets could be generated. These problem sets and the relevant ratings would then form the first set of data required for the construction of a career development program.

The second set of data could be obtained by reviewing the content of the summary dimensions identified for each boundary role category at various levels of the organizational hierarchy, along with the associated patterns of generic process and content variable requirements derived from the rating data. Lower-level boundary roles might be identified that would serve as appropriate sources of on-the-job training for each boundary role category because of overlap in summary dimensions and their associated patterns of processes, skills, knowledges, abilities,

and personal characteristics in frequency and criticality of use in effective problem-solving efforts. Additionally, an attempt might be made to determine differences in the nature of problem-solving activities and their relevant process and content variable demands as one moves to different role categories and/or different levels in organizational hierarchies.

The final set of data would be obtained from a review of current training procedures. Here the nature and content of classroom instruction would be determined along with its relevance to development of the skills, knowledges, abilities, and personal characteristics employed in evaluating performance on the summary dimensions contained in the various role categories. Additionally, trainers would be asked to specify when, where, how, and to whom training was provided to facilitate performance on each of the summary dimensions and its associated content variables.

The information obtained from this final set of data could then be compared to the skills, knowledges, abilities, and personal characteristics held to affect performance in the relevant boundary roles. This would serve to specify what training would be required to prepare an individual for a boundary role category, and any discrepancies would serve to suggest where changes should be made in the current training program. The importance of providing experiences to prepare an individual for movement between boundary roles may also be determined through this data. Training programs might be adjusted in order to stress content variables that a large number of trainees might lack because of limited overlap with the leadership demands made by their previous job. Thus, this information would allow trainers to concentrate on those areas where an individual is likely to be deficient in leadership requirements.

Certain general steps might be taken in all training programs that would be of value given the nature and content of the generic problem-solving processes. For instance, it has been shown that an individual's problem-solving performance can be enhanced by providing general problem-solving strategies (Greeno, 1977). A review of the leadership performance dimensions, as well as the relevant process and content

variable requirements, might be used to specify strategies for inclusion in formal classroom instruction. Classroom instruction might also attempt to enhance leadership effectiveness in general by providing the background for optimal use of the various generic processes. The instruction might specify: (1) the categories which are likely to be of use in problem solving, (2) the priority of goals in boundary roles, (3) the variables that signal goal discrepancies, and (4) the types of biases which arise in information encoding and selection of solution. Implementation of these approaches should lead to more effective classroom instruction and to enhanced leadership performance on a variety of jobs.

It cannot be expected that all processes, skills, knowledges, abilities, and personal characteristics can be enhanced through formal classroom instruction. A series of procedures might be employed to supplement traditional curricula with exercises derived from the problem sets identified by having subject matter experts formulate realistic problem-solving incidents and linking these incidents to their skill requirements. One strategy for the use of these problem sets would be to present them as case studies for group discussion (Champion & James, 1975; Brown & Kelly, 1968). This approach, particularly when coupled with formal lectures and feedback targeted on skill improvement, has proven highly effective in management development (Argyris, 1965; Maier, 1953; Riegel, 1952; Deluca & Powers, 1971).

Case studies are most likely to be useful for relatively objective problem sets and may not represent an especially viable strategy for developing socially oriented problem-solving skills. Instead, role-playing exercises might be designed based on the problem sets (Bradford & Lippitt, 1953). Role playing is especially likely to be effective if it is combined with a systematic coaching effort that defines alternative approaches and provides a trainee with feedback concerning his/her activities (Lawshe, Bolda, & Brune, 1959; Olmstead, Cleary, Lackey, & Salter, 1973). A final strategy would involve building computer simulations around a problem set. This has been shown to be at least as effective as case studies in addressing relatively objective problems

(Raia, 1966), and it offers certain advantages since it provides practice in decision making as well as rapid and accurate feedback that might otherwise be difficult to obtain, and it allows practice in solving problems in costly situations.

While all of these problem set approaches are likely to be of some value in developing effective leaders, a final procedure which might also be employed is on-the-job training. Here the matrices of the processes, skills, knowledges, abilities and personal characteristics required in different boundary roles could be used to design a sequence of boundary role assignments serving to prepare the individual for some higher-level boundary role, on the basis of the degree of overlap in the elements required for effective problem solving (Korotkin, Hadley, Davis, & Marsh, 1976). Since performance on many of these variables is influenced by appropriate experience, it can be expected that when this sequence of job experiences is extended over a period of years, it will be a highly effective developmental tool.

The classroom, problem set, and on-the-job training procedures for developing the problem-solving capacity of leaders should be viewed as mutually supportive rather than mutually exclusive techniques. It can be expected that the use of such multiple, overlapping training procedures, particularly when extended over an individual's career, will yield a highly effective career development system (Shewel, Taylor, & Hood, 1966). Moreover, when these procedures are carefully designed and well-integrated, it can be expected that they will provide a valid and systematic approach to the sequential and progressive development of leadership and management personnel.

## CONCLUSION

A number of statements have been made about the nature of leadership in organizational settings and implications suggested for leadership identification and development. It appears that an organizationally-based approach to leadership and the differential effectiveness of leaders as boundary role occupants can serve to integrate a wide range of conceptual and empirical findings, through use of the problem-solving activities inherent in all these roles.

Traditionally, investigators have approached the issues of leadership and leadership effectiveness in a manner which was not especially concerned with the nature of leadership as manifested in the organizational setting. Consequently, the leadership literature lacks cohesion and it has been difficult to apply behavioral science principles in leadership identification and development. The present paper represents a preliminary attempt to formulate an approach to leadership that is cognizant of both the individual leader and the organizational setting in which leadership occurs.

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